

ABSTRACT OF THE DISCLOSURE

The present invention provides a method for making a superabrasive composite material having the general formula $\text{Si}_x\text{C}_y\text{N}_z$, and tools containing such a material. In one aspect, vapor forms of Si, C, and N atoms are deposited onto a molten metal catalyst and
5 solid $\text{Si}_x\text{C}_y\text{N}_z$ is precipitated therefrom. The composite $\text{Si}_x\text{C}_y\text{N}_z$ materials have an interatomic structure substantially like that of silicon nitride. Such $\text{Si}_x\text{C}_y\text{N}_z$ materials can be used to form superabrasive particles, fibers, or coatings for various tools.